REMARKS

Claims 7-13 and 15-29 are present in this application. Claims 1-6 and 14 have been canceled. Claims 7, 10, 13, 15, 16, 17, and 29 are independent.

Claims 7 and 10 have been rewritten into independent form to incorporate the limitations of claim 4.

Claims 15 and 16 have been rewritten into independent form to incorporate the limitations of claim 1

Claim 28 has been amended to depend from claim 27 as recommended in the Office Action.

Accordingly, entry of this Amendment is proper as it at least reduces issues for appeal.

Claim Objection

Claim 28 has been objected to for minor informalities. Claim 28 has been amended to depend from claim 27 as recommended in the Office Action. Accordingly, Applicants request that the objection be withdrawn.

Claim Rejection – 35 U.S.C. § 103; Imura, Szeliski

Claims 1, 2, 4, 5, 14-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,929,971 (Imura) in view of U.S. Patent 6,097,854 (Szeliski). Claims 1, 2, 4, 5, and 14 have been canceled. Claims 15 and 16 have been re-written into independent form. Applicants traverse this rejection.

Embodiments related to claim 15 (e.g., second disclosed embodiment) are directed to

mobile equipment including, among other things

a pickup device picking up an image of a subject;

a parallax information portion determining parallax information of said subject;

a three dimensional image creation portion creating a three dimensional image by

applying said parallax information to said image; and

a display unit displaying said three dimensional image,

wherein said parallax information portion calculates said parallax information based on

the brightness of the image.

For example, in a second embodiment of the present invention, the processor 105 of the

mobile phone can divide a 2D image picked up through a camera 206 into a plurality of blocks

and detect each block's brightness. Parallax information can be determined for each block such

that a brighter block will have a more forward position in a display of a 3D image on main

screen 203. Thus, the second embodiment results in a more accurate determination of parallax

information. (present specification at page 12, lines 10-22).

The Office Action indicates that a section of Imura at column 2, lines 41-45 teaches the

claimed calculation of parallax information based on the brightness of the image.

Imura is directed to a camera and an image output apparatus that is capable of trimmed

photographing (i.e., reproduction). According to the section at column 2, parallax information is

detected and recorded based on a positional relationship between the photographing lens and the

finder, and focal length of the lens and object distance. Parallax correction is made at image reproduction.

The Office Action alleges that objects that are at a further distance may appear to be less bright than closer objects especially when camera flash is used. Applicants submit that this statement is not supported by the plain teachings of Imura.

First of all, Imura does not disclose a camera having a camera flash. Second, Imura does not disclose calculation of parallax based on brightness of the image. Imura clearly relies on object distance for detection of parallax information. Thus, Applicants submit that Imura fails to teach or suggest at least the claimed "wherein said parallax information portion calculates said parallax information based on the brightness of the image."

Embodiments related to claim 16 (e.g., third disclosed embodiment) include calculation of parallax information based on intensity of light reflected from the subject.

The Office Action alleges that objects from a further distance may appear to be less intense than closer objects especially when a camera flash is used. Applicants submit that this statement is not supported by the plain teachings of Imura.

As in the case for claim 15, Imura does not disclose a camera having a camera flash. Second, Imura does not disclose calculation of parallax information based on intensity of reflected light from the subject. Imura clearly relies on object distance for detection of parallax information. Thus, Applicants submit that Imura fails to teach or suggest at least the claimed "wherein said parallax information portion calculates said parallax information based on the intensity of light reflected from the subject."

Therefore, Applicants submit that Imura and Szeliski, either alone or in combination, fail to teach each and every element of claims 15 or 16. Accordingly, the rejection fails to establish prima facie obviousness for claims 15 and 16.

Applicants request that the rejection be reconsidered and withdrawn.

Claim Rejection – 35 U.S.C. § 103; Imura, Szeliski, Aoki

Claims 3 and 6-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Imura in view of Szeliski and further in view of U.S. Application Publication 2002/0054032 (Aoki). Claims 3 and 6 have been canceled. Applicants traverse this rejection.

Embodiments related to claim 7 (e.g., fourth disclosed embodiment) are directed to a mobile equipment including, among other things,

a single pickup device picking up an image of a subject;

a parallax information portion determining parallax information of the subject;

a three dimensional image creation portion creating a three dimensional image by applying the parallax information to the image; and

a display unit displaying the three dimensional image,

wherein the three dimensional image creation portion cuts a human face out of the image picked up, to obtain a face image and provides the face image with the parallax information.

Similarly, embodiments related to claim 13 (e.g., fourth disclosed embodiment) are directed to a three dimensional conversion program product causing a computer to execute a three dimensional conversion process comprising the steps of:

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inputting a two dimensional image;

cutting a human face image out of the two dimensional image to obtain a face image;

determining parallax information of the face image;

creating a three dimensional image by applying the parallax information to the face

image; and

outputting the three dimensional image.

The Office Action alleges that Aoki teaches the claimed limitation of "cuts a human face

out" at paragraph 0039. Paragraph 0039 states that in order for a target image such as an image

of a user's face to fully fill an image frame, the face is enlarged, reduced, or tracked. "Then, only

the face image is cut out and that image is compressed and transmitted."

Applicants submit that neither paragraph 0039 of Aoki nor the Office Action specifically

address the feature of applying parallax information to the face image as recited in claims 7 and

13. Claims 7 and 13 require providing the face image with parallax information in creation of a

three dimensional image. Imura fails to make up for this deficiency in Aoki as it is concerned

with trimming an image based on a difference in the view angles of a view finder and a lens. The

trimming or difference does not apply to a face image.

Thus, Applicants submit that neither Imura nor Aoki teach or suggest at least the feature

of a three dimensional image creation portion that "provides said face image with said parallax

information" of a face image that has been cut from a two dimensional image, or a step of

"creating a three dimensional image by applying said parallax information to said face image."

For at least these reasons, Applicants submit that Imura, Szeliski, and Aoki, either alone or in combination, fail to teach each and every claimed element of claims 7 and 13.

Embodiments related to claim 10 (e.g., fourth disclosed embodiment) are directed to a mobile equipment including, among other things

a single pickup device picking up an image of a subject;

a parallax information portion determining parallax information of the subject;

a three dimensional image creation portion creating a three dimensional image by applying the parallax information to the image; and

a display unit displaying the three dimensional image,

wherein the three dimensional image creation portion selects a particular subject from said image picked up, to obtain an image of the subject and provides said image of the subject and an image included in the image picked up other than the particular subject with different parallax information, respectively.

The Office Action alleges that Imura teaches the claimed "selects a particular subject from said image … included in said image … other than said particular subject with different parallax information." Applicants disagree. Imura merely teaches trimming of an image for proper image reproduction. Imura does not teach selection of a particular subject as alleged in the Office Action.

The Office Action alleges that Aoki's teaching in figures 7A and 7B of extracting a face from an initial image where background objects are included in the initial image, implies that the background objects have different parallax information from the face and thus would not be

extracted (Office Action at paragraph bridging pages 5-6). Applicants submit that this statement is not supported by the plain teachings of Aoki. Aoki does not disclose parallax information applied to either background objects or the face.

Thus, Applicants submit that Aoki fails to teach or suggest at least the claimed "wherein the three dimensional image creation portion selects a particular subject from said image picked up, to obtain an image of the subject and provides said image of the subject and an image included in the image picked up other than the particular subject with different parallax information, respectively."

For at least these reasons, Applicants submit that Imura, Szeliski, and Aoki, either alone or in combination, fail to teach each and every claimed element of claim 10.

Accordingly, the rejection fails to establish *prima facie* obviousness for claims 7, 10, and 13, and respective dependent claims.

Applicants request that the rejection be reconsidered and withdrawn.

Claim Rejection – 35 U.S.C. § 103; Szeliski, Yokoi

Claims 17, 23, and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Szeliski in view of U.S. Patent 5,682,171 (Yokoi). Applicants traverse this rejection.

Embodiments related to claim 17 (e.g., first disclosed embodiment) are directed to a mobile equipment including, among other things

a pickup device picking up a two dimensional image data of a subject;

a three dimensional image creation portion obtaining display data for three dimensional display, the display data including image data for a right eye and for a left eye, wherein the three dimensional image creation portion includes,

a first data process means for generating three dimensional data derived from the two dimensional data; and

a second data process means for converting the three dimensional data into the image data for the right eye and the image data for the left eye; and

a display unit displaying an image for the three dimensional display based on the display data.

Embodiments related to claim 29 are directed to a corresponding method.

With respect to claims 17 and 29, the Office Action relies on the combination of Szeliski and Yokoi. The Office Action relies on Szeliski for teaching the claimed "first data processing means" for generating three dimensional data from the two dimensional data, "second data processing means" for converting the three dimensional data into the image data for the right eye and the image data for the left eye, and "display unit" displaying an image for the three dimensional display.

The Office Action states that Szeliski does not explicitly teach the claimed "three dimensional image creation portion" obtaining display data for three dimensional display. The Office Action instead relies on Yokoi for teaching this limitation. In particular, the Office Action states that Yokoi's teaching of "converting planar image data for one picture in the source image data into the first and second display" teaches the claimed limitation.

To the contrary, the claimed first data processing means and second processing means are recited as being components of the three dimensional image creation portion. Because Szeliski fails to teach the claimed three dimensional image creation portion, Szeliski fails to teach the claimed structure wherein the three dimensional image creation portion include the first and second data processing means. Furthermore, the allegation that Szeliski teaches the claimed "second data process means" by teaching a texture-mapped polyhedron that can be exploited using standard 3D graphics viewers, implying that the standard graphic viewer can create a left and a right image using well known perspective transformation functions, is not supported by the teachings of Szeliski. Szeliski does not actually teach or suggest converting a three dimensional data into image data for the right eye and image data for the left eye.

Yokoi is directed to a stereoscope image display device which produces parallax images for left and right display systems by shifting two images in opposite directions along the X axis by a parallax amount (see col. 16, lines 16-54; see Figs. 21 and 22). However, Yokoi's approach of shifting images by a parallax amount also does not teach conversion of "three dimensional data" into image data for the right eye and image data for the left eye. In other words, Yokoi merely discloses creation of an image for the right eye and an image for the left eye by shifting a two dimensional image in opposite directions by a parallax amount.

Thus, Applicants submit that neither Szeliski nor Yokoi teach or suggest at least the claimed feature of "a second data process means for converting the three dimensional data into the image data for the right eye and the image data for the left eye." As noted above, Szeliski

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fails to teach the claimed structure of a first data processing means and second data processing means included in the three dimensional image creation portion.

Accordingly, for at least these reasons, Applicants submit that the rejection fails to establish *prima facie* obviousness for claims 17 and 29, as well as dependent claim 23.

Further with respect to claim 23, claim 23 recites an additional feature of a memory for storing a face geometry model, as well as that the three dimensional image creation portion further includes an extraction means for extracting a human face image out of two dimensional image data, "wherein said first data process means generates the three dimensional data from the human face image data based on the face geometry model."

The Office Action only states that Szeliski teaches the claimed "memory for storing a geometry model" by teaching memory storing models in figure 2B, piece 270. The Office Action does not specifically point out where other features recited in the claim are taught in the prior art. Applicants submit that Szeliski does not teach generation of three dimensional data from an extracted human face image based on the face geometry model.

Accordingly, at least for this additional reason, Applicants submit that the rejection fails to establish *prima facie* obviousness for claim 23.

Applicants request that the rejection be reconsidered and withdrawn.

Claim Rejection – 35 U.S.C. § 103; Szeliski, Yokoi, Taniguchi

Claims 18-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Szeliski, Yokoi and further in view of U.S. Patent 6,940,646 (Taniguchi). Applicants traverse this rejection.

Taniguchi teaches a stereoscopic image display.

Claims 18-20 depend from claim 17. Applicants submit that at least for the reasons above for claim 17, the rejection fails to establish *prima facie* obviousness for claims 18-20, as well.

Applicants request that the rejection be reconsidered and withdrawn.

Claim Rejection – 35 U.S.C. § 103; Szeliski, Yokoi, Imura

Claims 21 and 24-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Szeliski, Yokoi, and Imura. Applicants traverse this rejection.

Claims 21 and 24-26 depend from claim 17. Applicants submit that at least for the reasons above for claim 17, the rejection fails to establish *prima facie* obviousness for claims 21 and 24-26, as well.

In addition, with respect to claim 26 the Office Action indicates that Imura's lamp 114 teaches the claimed "radiation unit." Contrary to the claimed invention, Imura's lamp 114 (Fig. 12) is disclosed as being part of a printing apparatus, and is not for illuminating a subject with light.

Applicants request that the rejection be reconsidered and withdrawn.

Claim Rejection – 35 U.S.C. § 103; Szeliski, Yokoi, Aoki

Claims 22, 27, and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Szeliski, Yokoi, and Aoki. Applicants traverse this rejection.

Claims 22, 27, and 28 depend from claim 17. Applicants submit that at least for the reasons above for claim 17, the rejection fails to establish *prima facie* obviousness for claims 22, 27 and 28, as well.

Applicants request that the rejection be reconsidered and withdrawn.

Conclusion

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert W. Downs (Reg. No. 48,222) at the telephone number of (703) 205-8000, to conduct an interview in an effort to expedite prosecution in connection with the present application.
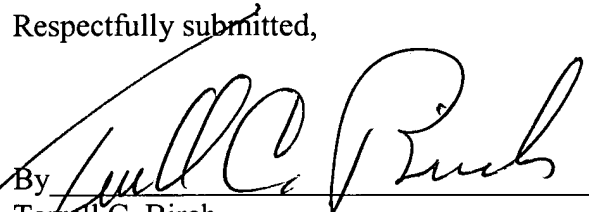
If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies,

to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional

fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: March 28, 2006   Respectfully submitted,

By _____
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